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ABSTRACT

An inquiry concerning the future of the Western Australian School of Mines and the Eastern Goldfields Technical College that was undertaken by the Western Australian Post Secondary Education Commission is considered, as are the resulting recommendations. After a statement of the issues affecting the future of the schools and the community, background information is presented on the Eastern Goldfields region, including an assessment of the growth potential of the mining industry and its future manpower requirements. Information on postsecondary education in the region, including facilities, enrollments, staffing, and courses (with particular reference to courses providing qualifications for employment in the mining industry) are presented. A number of models that might provide for the future postsecondary education needs of the region and the professional manpower requirements of the state's mining industry are examined. Institutional models range from the status quo (two separate institutions) to a single integrated institution, the community college. In addition to the commission's recommendations, statistical data on student enrollments, information on labor requirements for mining occupations, information on use of tuition space at the Western Australian School of Mines and operating costs at the school, staff recruitment, and population statistics for the region are presented. (SW)

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REPORT ON POST SECONDARY EDUCATION IN THE EASTERN GOLDFIELDS: THE FUTURE OF THE WA SCHOOL OF MINES AND THE EASTERN GOLDFIELDS TECHNICAL COLLEGE

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WESTERN AUSTRALIAN POST SECONDARY EDUCATION COMMISSION

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PLAN OF THE REPORT

The Report is divided into a number of sections as follows -

Introduction (paragraph 1)

The Issues (Paragraphs 2 - 20)

A statement of the issues affecting the future of the WA School of Mines, the Eastern Goldfields Technical College and the community.

Procedures (Paragraphs 21 - 28)

Details of the procedures adopted by the Commission.

Background Information (Paragraphs 29 - 46)

A brief review of the Eastern Goldfields region including an assessment of the growth potential of the mining industry and its future manpower requirements.

An account of post secondary education in the region. Particulars for the WA School of Mines and the Eastern Goldfields Technical College including facilities, enrolments, staffing and courses, with particular reference to courses providing qualifications for employment in the mining industry.

Possible Solutions (Paragraphs 47 - 75)

An examination of a number of models which might provide for the future post secondary education needs of the region and the professional manpower requirements of the State's mining industry.

The possibilities considered include solutions based on retention of the tertiary courses at the WA School of Mines in Kalgoorlie and relocation of the tertiary courses at WAIT's Bentley campus. Institutional models examined in detail range from the *status quo*, i.e. two separate institutions, to a single integrated institution - the community college.

Discussion of a federation of post secondary education institutions in Kalgoorlie based on the WA School of Mines and the Eastern Goldfields Technical College, retaining the School's tertiary courses in Kalgoorlie.

Recommendations (Paragraphs 76 - 78)

INTRODUCTION

1. A number of issues raised in the Partridge Committee Report,[1] including the future of the WA School of Mines and the Eastern Goldfields Technical College, was referred to the Commission by the Government of Western Australia for consideration and subsequent report to the Government. This is the Commission's report on the future of the WA School of Mines and the Eastern Goldfields Technical College.

THE ISSUES

The Partridge Report

2. After its assessment of post secondary education in the Eastern Goldfields region (pp 124-135), the Committee recommended (pp 134 and 135) -

> "....that the associate and degree level courses at present being offered at the WA School of Mines at Kalgoorlie should be progressively transferred to the Bentley campus of the Western Australian Institute of Technology."
>
> "....that the Eastern Goldfields Technical School (now College) should be further developed, staffed and equipped to offer a wide range of courses at levels appropriate to the institution, to meet the varied needs of the mining industry and of the people of Kalgoorlie-Boulder and of the Eastern Goldfields region."
>
> "....that the proposed Post Secondary Education Commission and the Council of the (proposed WA) Technical and Further Education Authority should jointly consider as a matter of high priority the development of the Eastern Goldfields Technical School into a community college...."

The Committee based its recommendations on a number of specific issues arising from its appraisal of the situation with respect to the WA School of Mines and the Eastern Goldfields Technical College. Further specific issues have also emerged since the release of the Partridge Report. All of the issues raised are detailed in the following paragraphs.

Issues Affecting the WA School of Mines

3. Enrolments Apart from short term increases, there has been a trend of declining enrolments at the School since 1958. The enrolment decline has, however, been partly offset by an increase in the proportion of full-time students enrolled at the School. Since 1969, the year in

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(1) Committee on Post-Secondary Education (Prof. P.H. Partridge, Chairman), *Post Secondary Education in Western Australia*, Government Printer, Perth, 1976.

which the Western Australian Institute of Technology (WAIT) assumed responsibility for the School, part of the enrolment decline reflects the financing policy for colleges of advanced education: only courses approved by the Commission on Advanced Education are funded. Hence, there has been a reduced commitment to sub-tertiary studies by the School (see Appendix 1, Tables 1A and 1B).

4. Student Demand Student perceived advantages associated with study in Perth limit the ability of the School to attract students.

5. Industrial Demand Employment prospects available to graduates are limited, particularly when mining production and mineral exploration activities are less buoyant. Relatively small enrolments in mining and related courses are therefore to be expected. (Appendix 2 provides information on labour requirements for professional occupations in mining and mineral exploration in Western Australia.)

6. Resource Utilisation The level of enrolments makes it difficult to utilise effectively the resources, including the residential accommodation at Agricola College, which are of a good standard, accommodated in most instances in modern buildings. (Appendix 3 provides information on the utilisation of tuition space at the School.)

7. Operational Costs It is claimed that the cost per full-time student enrolled at the WA School of Mines is significantly higher than the cost for students enrolled in similar disciplines in Perth. Implications follow for the determination of budgets for the other schools of study within WAIT. (Appendix 4 provides some information on this issue.)

8. Manpower Requirements It is also claimed that the mining and minerals industry in Western Australia contributes a major proportion of the State's current total product and is fundamental to future State development. The industry is capital intensive, implying a high ratio for value added per person employed. Professional and technical manpower requirements are characterised by a need for relatively small numbers of personnel who have undertaken specialised training.

9. Quality of Education Because of the small size of the School and limited range of resources, the spectrum of teaching and learning

experiences that can be provided is limited. A letter received from the Institution of Engineers (Australia) questions whether the educational viability of the engineering courses offered at the School can be maintained.

10. Academic Staff Recruitment It is alleged that a Perth based school would provide improved opportunities to attract and retain academic staff of high quality (see Appendix 5).

11. The WA School of Mines as a Specialist Institution for Mining Education In more general terms, evidence has also been presented in support of a specialist school of mines for Western Australia, particularly in view of the increasing importance of mining production and mineral exploration to the Western Australian and Australian economies. It is alleged that the present location of the School, its accommodation, equipment and staff provide the basis for developing an integrated specialist school of excellence for the training of personnel for the mining industry with associated research activities.

12. Location of the School With the expansion of mineral exploration, mining and mineral processing into other areas in Western Australia, the appropriateness of the current location of the School has been questioned and Perth proposed as a more suitable location. The following points have been made regarding the location of the School in Kalgoorlie:

    (i) It inhibits effective relationships with other education institutions offering courses and research facilities relevant to the mining and minerals industries, e.g., Murdoch University and the University of Western Australia, as well as the relevant WAIT departments based on the Bentley campus. The importance of maintaining and developing these relationships has been emphasised in many of the submissions made to the Commission.

    (ii) It places the School close to a unique geological formation and a variety of mining and mineral processing operations. Courses offered are therefore practically oriented, providing on-the-job training and the opportunity to develop close links with industry. "Sandwich" course organisation also facilitates alternate attendance, on a semester basis, at the School and the place of employment.

(iii) It provides the opportunity for students to experience the environment for which their training is preparing them, i.e., life in a mining town.

13. Decentralisation Although there is considerable debate about the feasibility of achieving decentralisation, it is still an active part of government policy. Retaining the WA School of Mines in Kalgoorlie would demonstrate support for such a policy.

Issues Affecting the Eastern Goldfields Technical College

14. Enrolments Enrolments are much higher at this College than at the WA School of Mines, and the courses provide a greater range and level of qualifications. The increase in enrolments evident in recent years has necessitated use of temporary and inadequate accommodation, as well as facilities at the WA School of Mines and the existing college (see Appendix 1, Table 1C).

15. Facilities The buildings in which the College is accommodated are approximately 30 years old and in a substandard condition. Plans to rebuild it were shelved due to uncertainty over the future of the WA School of Mines and the College. Utilisation of the facilities is therefore severely hampered by the poor standard of accommodation in which many of the college activities are pursued.

Issues Affecting the WA School of Mines and the Eastern Goldfields Technical College

16. Duplication in Courses It has been alleged that some of the duplication in courses and subjects offered by the two institutions is unnecessary, e.g., the certificate and diploma courses in mine surveying.

17. Relationship Between the Two Institutions Although evidence suggests there is positive co-operation between the WA School of Mines and the Eastern Goldfields Technical College, it is limited by the existing institutional and procedural framework.

18. Future Funding for Post Secondary Education in the Eastern Goldfields It is contended that it will be difficult in the future to support adequate funding for the development of two post secondary education institutions in the Eastern Goldfields, particularly if the current economic climate with its consequent effect on funds available for education continues.

Issues Affecting the WA School of Mines, the Eastern Goldfields Technical College and the Community

19. The WA School of Mines and the Eastern Goldfields Community Evidence presented to the Partridge Committee, in subsequent submissions presented to the WA Post Secondary Education Commission and reported in the media has clearly indicated the importance of the WA School of Mines in and to the Kalgoorlie/Boulder community. The importance is not only based on the direct and indirect effects of the School on the local economy, but also its place in adding to the prestige of the local community, in particular the mining community.

20. The Eastern Goldfields Technical College and the Eastern Goldfields Community As a consequence of the above attitudes held by some sections of the community and the inferior nature of the College's accommodation, its image is unfavourable when compared with that of the WA School of Mines.

PROCEDURES

The Commission's Rationale

21. The Commission decided early in its deliberations that it was appropriate to consider the future of the WA School of Mines and the Eastern Goldfields Technical College in the broader context of post secondary education needs for:

(i) the mining industry in Western Australia;
(ii) training personnel for other industries, commerce and services in the Eastern Goldfields; and
(iii) the Eastern Goldfields community.

To provide for these needs, possible organisational and institutional models were considered, taking into account the WA School of Mines and the Eastern Goldfields Technical College.

Commission Sub-committee

22. A sub-committee of the Commission was established to consider the future of the WA School of Mines and the Eastern Goldfields Technical College. It agreed on the following procedures to provide an adequate basis for the Commission's final report and recommendation.

Invitation for Further Submissions

23. Advertisements were placed in the *West Australian*, the *Sunday Times* and the *Kalgoorlie Miner* inviting interested individuals and organisations to make submissions to the Commission. Nineteen submissions were

received, representing a broad coverage of community interests, including the academic staff at the WA School of Mines, the Eastern Goldfields Technical College and other post secondary education institutions; students of the WA School of Mines; individuals employed in the mining industry and industrial organisations. Relevant submissions which were made in response to the Partridge Committee Report and referred to the Commission were also considered by the sub-committee. Appendix 9 lists the submissions.

Visit to the Eastern Goldfields

24. An initial one-day visit to the Eastern Goldfields by the Chairman and the Research Officer of the Commission was followed by a two-day visit by members of the sub-committee. Members of the sub-committee viewed the facilities of the WA School of Mines including the Agricola Residential College, the Eastern Goldfields Technical College and nickel mining and smelting operations at Kambalda and Kalgoorlie. Discussions were held with the Principals, members of the Advisory Boards and some staff and students of the WA School of Mines and the Technical College. A wide cross-section of community opinion was canvassed through discussions with Local and State Government members, representatives of community services and organisations, and prominent commercial and industrial representatives. Appendix 10 provides information on the discussions held and the persons in attendance.

Formal Discussion

25. Sub-committee discussions were arranged with the Director of WAIT, the Director-General, and the Acting Director and a Superintendent of Technical Education.

Mining Industry Survey

26. Sub-committee Proposal The sub-committee considered that a survey of manpower needs in the mining industry should be undertaken as an integral part of its investigation. Aspects of particular importance were considered to be:

(i) skills and competencies currently required;
(ii) the number of persons currently employed, and the nature and source of their qualifications and previous employment experience;
(iii) the effectiveness of (ii) in meeting (i); and
(iv) skills and competencies required for the future.

Preliminary investigation revealed that a number of studies with similar

aims were either mooted or in progress. As a result of discussion with the Chamber of Mines, the Commission obtained access to the results of a detailed survey on current and projected manpower requirements of the mining and mineral processing industries in Western Australia. (Appendix 2 provides information relating to professional occupations in the Industry.)

27. WA School of Mines Survey The Principal of the WA School of Mines has recently undertaken a mining industry sample survey of 53 firms. Based on a response ratio of 50%, estimated requirements for professional staff in Western Australia were forwarded to the Commission. The results of both surveys were assessed and assisted in a general appraisal of the future of the Eastern Goldfields and the demand for graduates from the WA School of Mines.

General Information

28. The sub-committee agreed that certain additional information should be obtained to assist with its investigation. Specific items included student data from all relevant post secondary institutions and high schools in the Eastern Goldfields region; recruitment of staff for the WA School of Mines; statements of competencies and teaching responsibilities for staff at the WA School of Mines and the Eastern Goldfields Technical College; information on related courses, programmes and research offered at Murdoch University and the University of Western Australia; data on the cost per student enrolled in courses offered by the WA School of Mines; and a survey of utilisation of tuition space at the School, including classrooms and specialist facilities such as laboratories and workshops. A great deal of invaluable information was also provided in the submissions forwarded to the Commission.

BACKGROUND INFORMATION

29. The Partridge Report provided some information on the WA School of Mines and the Eastern Goldfields Technical College, and also referred to more general questions such as the future prospects for the Eastern Goldfields region (pp 124-135 of the Report). A brief review of the current situation and future potential of the Eastern Goldfields region, including recent trends in participation in post secondary education, follows. Information about the two institutions is provided, including campus description, enrolments, courses offered and staffing. Reference is also made to post secondary education courses providing qualifications for employment in the mining industry, and an assessment of future manpower requirements for this industry is provided.

The Eastern Goldfields Region

30. The WA School of Mines and the Eastern Goldfields Technical College are located in, and derive the majority of their enrolments from, the Eastern Goldfields, i.e., South Eastern Statistical Division. It encompasses the statistical areas of Laverton, Leonora, Menzies, Kalgoorlie, Boulder, Coolgardie, Dundas, Esperance and Ravensthorpe. (Appendix 7 identifies the region.) The towns of Kalgoorlie/Boulder, Kambalda and Esperance are the principal centres of the region and the former is the pre-eminent regional centre of population, commerce and services, including transport.

31. The economy of the region is based on mining and mineral processing and agriculture. From initial dependence on gold mining and processing, there has been a significant shift in the last decade to nickel mining and smelting. The region is now a major nickel producer and is the second biggest mineral dollar earner in the State's economy. While there is inevitably some uncertainty associated with further development, there are firm indications of further potential for nickel extraction and processing, as well as the presence of significant deposits of other minerals, particularly copper and uranium. Agriculture, the other major industry, is concentrated in the southern part of the region.

32. Growth in the workforce and, hence, additional demand for education and training are likely to focus primarily on the requirements of mining and related industries. Previous experience suggests that with general expansion, initial labour demand is concentrated in mineral exploration, then construction, and finally mineral extraction, processing and associated services. While it is reasonable to expect long term impacts on the indigenous workforce and, hence, the demand for courses to meet particular skill requirements, imported labour will be used in meeting initial demand for labour, particularly in construction projects.

33. In general terms, therefore, the Commission is of the opinion that there will be a sustained although modest demand for qualified professional personnel in mining and related disciplines. The numerically more significant requirements will centre in the para- and semi-professional areas and the trades, i.e., courses offered and that can be offered by the Eastern Goldfields Technical College. Future demand for adult education courses is difficult to assess but is unlikely to decline.

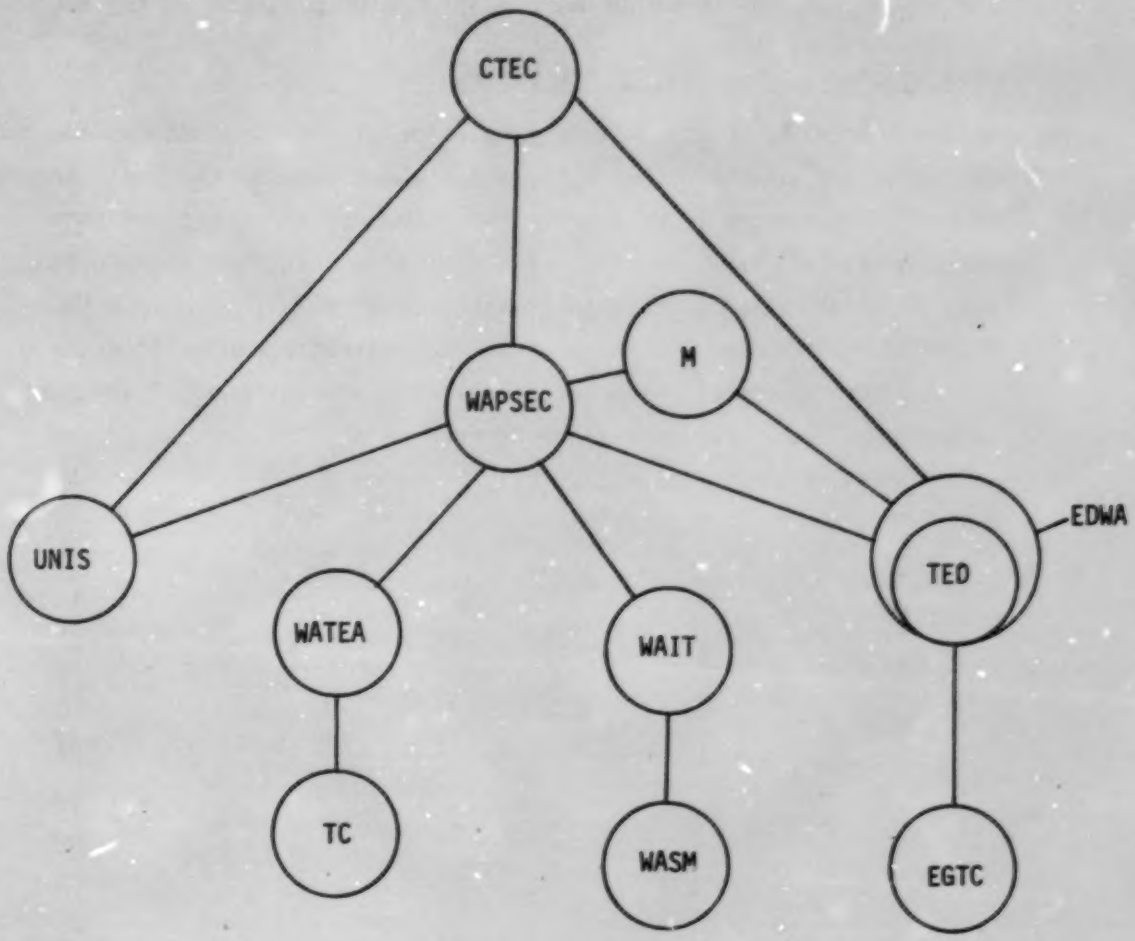
In making this appraisal, the Commission considers that a substantial increase in demand for places is unlikely unless demand arises from the implementation of one or more major mining projects in the region.

Post Secondary Education in the Eastern Goldfields

34. Figure 1 provides a schematic presentation of the institutions and the executive and co-ordinating authorities which make up the post secondary education system in Western Australia. Some of the questions posed in the Commission's consideration of alternative solutions for providing post secondary education in the Eastern Goldfields follow from the relationship between institutions and co-ordinating authorities, e.g., funding arrangements for technical colleges and colleges of advanced education. These issues will be pursued in a later section of the report dealing with POSSIBLE SOLUTIONS. (See p.15)

FIGURE 1

THE POST SECONDARY EDUCATION SYSTEM IN WESTERN AUSTRALIA



WA SCHOOL OF MINES

Departments -

* Mining & Mineral Technology
* Metallurgy
* Geology

Agricola - a student residential college located in Kalgoorlie.

* The departments of Geology & Metallurgy operate from WAIT's Bentley campus as well as the School of Mines in Kalgoorlie.

KEY:

CTEC - Commonwealth Tertiary Education Commission
WAPSEC - WA Post Secondary Education Commission
EDWA - Education Department of WA
TED - Technical Education Division
WATEA - WA Teacher Education Authority
TC - Teachers Colleges

EASTERN GOLDFIELDS TECHNICAL COLLEGE

Sections -

Trades (Automotive
(Carpentry
(Electrical
(Fitting/Machinery
(Metal Construction
Commercial Studies
Dressmaking
General Studies
Maths/Science
Surveying/Cartography

WASM - WA School of Mines
EGTC - Eastern Goldfields Technical College
M - Minister
UNIS - The University of Western Australia
- Murdoch University
WAIT - WA Institute of Technology

The WA School of Mines

35. The School, established for 75 years, developed as a comprehensive college with a strong orientation to a variety of local needs, including those of the mining industry, and thus provided a wide range of programmes, from pre-primary studies to associate diploma courses, as well as playing a significant role in problem solving research for the mining industry. As a result of the incorporation of the School within WAIT in 1969, its character changed as the academic programme became increasingly oriented towards "approved" advanced education courses. The sub-tertiary courses previously offered at the School were phased out.

36. Currently the WA School of Mines, located at Kalgoorlie (see Appendix 8), is part of the School of Mining and Mineral Technology, one of the 8 academic schools within WAIT. The courses offered, and hence the staff and facilities, are shared between WAIT's Kalgoorlie and Bentley campuses.

37. Information on the number of full-time academic staff is presented in the following table:-

TABLE 1

ACADEMIC STAFF: THE SCHOOL OF MINING AND MINERAL TECHNOLOGY (INCLUDING THE WA SCHOOL OF MINES) 1977

Department	Academic Staff		
	WA School of Mines	Bentley	School of Mining & Mineral Tech.
Mining Engineering	8		8
Geology	4	6	10
Metallurgy	4	4	8
School Courses	3		3
TOTAL	19	10	29

Source: Information supplied by the Western Australian Institute of Technology.

38. Accommodation for the WA School of Mines is provided on a 1.3 hectare site, mainly in modern buildings with some well preserved old buildings. $850,000 in uncommitted funds has been provided in legislation for the replacement of geology facilities. Agricola College, affiliated with the WA School of Mines, occupies approximately 50% of a 3.1 hectare site located in the immediate vicinity of the School. Accommodation of a high standard is available for approximately 70 students. The College is financed jointly by government and private sources.

39. The close relationship between the WA School of Mines and the mining industry which developed from the School's inception has continued in a variety of forms, including co-operative research arrangements, assistance with practical aspects of the courses offered, donation of teaching resources and provision of financial assistance and scholarships for students. In 1977, the WA Department of Mines, a number of firms in the mining industry and contributors from the Eastern Goldfields community have provided substantial financial support for promotion of courses offered, student scholarships and development of the School's teaching resources.

The Eastern Goldfields Technical College

40. The College is situated on a principal campus of 1.5 hectares (see Appendix 8), mainly in substandard buildings. A library facility is currently being developed in part of an unlet shopping complex immediately behind the main campus. Use is also made of the old Eastern Goldfields High School, and tuition space at the WA School of Mines. A 3.6 hectare site for future development has been reserved adjacent to the existing school on the opposite street frontage. Rebuilding of the College has been deferred for some time pending consideration of the future of the College and the WA School of Mines.

Other Post Secondary Education Institutions

41. A variety of external studies programmes available to Eastern Goldfields residents is offered by the Technical Extension Service of the Technical Education Division of the Education Department, WAIT, Mount Lawley Teachers College and Murdoch University. Significant numbers of intending students also establish themselves in the metropolitan area and enrol in courses offered in institutions located in Perth. (Appendix 1, Tables 1E and 1F provide some relevant information).

Courses Available - General

42. The Eastern Goldfields Technical College offers a comprehensive range of courses from pre-apprenticeship training to certificate and diploma programmes and adult education. These courses cover a wide variety of disciplines. The WA School of Mines, as well as courses in mining and related disciplines, offers a Bachelor of Business (Accounting) Degree. External studies programmes also provide a comprehensive spectrum of study possibilities.

Courses Available - Mining and Mineral Technology

43. Table 2 provides information on the courses available in mining and mineral technology, indicating their formal duration and the post secondary education institutions which offer the courses.

TABLE 2

EXISTING COURSES IN THE FIELD OF MINING AND MINERAL TECHNOLOGY

Course	Nature of Course	Venue	Examining Body
B.App.Sc./Eng. Mining	3/4 yrs Full-time 6/7 yrs Part-time	WA School of Mines	WAIT
Post-Grad./ B.App.Sc. in Extractive Metallurgy	3 yrs Full-time 5/6 yrs Part-time	WA School of Mines	WAIT
Post-Grad./ B.App.Sc. in Mining Geology	3 yrs Full-time 5/6 yrs Part-time	WA School of Mines	WAIT
Associate Diploma Course in Mining Technology (Mine Surveying or Ventilation)	2 yrs Full-time 4/5 yrs Part-time	WA School of Mines	WAIT
Certificate in App.Sc. - Geology	2 yrs Full-time 3 yrs Part-time	Mt Lawley Technical College	Tech.Ed.Div.
Diploma in App.Sc. - Geology	4 yrs - Full/ Part-time 5 yrs Part-time	Leederville Tech. College Mt Lawley Tech. College Bunbury Tech. School	Tech.Ed.Div.

...cont'd over

TABLE 2 - continued

Course	Nature of Course	Venue	Examining Body
Diploma in Metallurgy	5 yrs Part-time	Fremantle Technical College	Tech.Ed.Div.
Diploma in Surface Mining	5 yrs Part-time	Tech.Ext.Service Bunbury Tech.School Wembley Tech.College	Tech.Ed.Div.
Diploma in Assaying	4 yrs Part-time	Tech.Ext.Service Mt. Lawley Tech. College	Tech.Ed.Div.
Diploma in Mine Surveying	3 yrs Full/ Part-time 5 yrs Part-time	Tech.Ext.Service E.G.Tech.School Bunbury Tech.School Wembley Tech.College	Tech.Ed.Div.
Mine Supervisors	2 yrs Part-time	E.G.Tech. School	Mines Department
B.Sc.(Geol.) M.Sc. etc.	3 yrs Full-time	Univ. of W.A. Univ. of W.A.	Univ. of W.A. Univ. of W.A.
B.Sc.(Mineral Science)	3 yrs Full-time	Murdoch Univ.	Murdoch Univ.
Post-Grad.Dip. (Mineral Sc.)	1 yr Full-time	Murdoch Univ.	Murdoch Univ.
Higher Degree (Mineral Sc.)		Murdoch Univ.	Murdoch Univ.

Enrolments

44. Enrolment information is provided in Appendix 1, Tables 1A-1G. Assessment of data for recent years suggests that enrolments at the WA School of Mines and the Eastern Goldfields Technical College have stabilised in 1977, thus suppressing the downward trend evident in recent years. With respect to the WA School of Mines, enrolments in the Mining Engineering course are quite buoyant, although there has been a continuation of the decline in general engineering courses and the low level of demand for the geology course. There has been a very favourable response to the post graduate external study programme offered in metallurgy in 1977.

45. It has also been possible to obtain some information on the participation of the Eastern Goldfields population in post secondary education, particularly at the universities and colleges of advanced education.

There is evidence in the data for 1975-1977 which suggests a declining importance of the Eastern Goldfields population in the total enrolments at the WA School of Mines and the Perth based institutions - a significant reduction in absolute terms from 1975 to 1976, with a stabilisation of numbers in 1977. Most intending students (approximately 3 in 4), move from the Eastern Goldfields to Perth. Evidence suggests that after students make this decision, their institutional preferences favour WAIT, then one of the universities and, as a third choice, one of the teachers colleges. Trends in the source population, i.e., the school-leaver population and the total population in the region, although not conclusive, suggest that major changes towards increased demand for post secondary education by Eastern Goldfields residents are unlikely. Final year secondary school enrolments have shown modest growth for the period 1970-1977. Population (see Appendix 6) in the South East Statistical Division (previously known as the Eastern Goldfields) increased in the period 1966-1971, partly in response to the mineral boom, and has remained static from 1971 to 1976. There have been some intra-divisional shifts, as the figures for Kalgoorlie/Boulder suggest, i.e., 1966 - 9203, 1971 - 9783 and 1976 - 9064.

46. As a result of its assessment of available evidence the Commission considered that a significant and sustained increase in the demand for places at the WA School of Mines or the Eastern Goldfields Technical College seemed unlikely. More positively, it seemed reasonable to expect some modest growth in enrolments at the two institutions and in the general demand for post secondary education by the Eastern Goldfields population. However, this growth might well be preceded by a period of relatively stable enrolment levels at the two institutions and in the general demand for places by Eastern Goldfields residents.

POSSIBLE SOLUTIONS

Submissions Received by the Commission

47. Considerable diversity of opinion with respect to the future of the WA School of Mines and the Eastern Goldfields Technical College is evident in the submissions received by the Commission. Nevertheless, the specific factors to be taken into account can be summarised under three broad categories - Economic, Educational and Community (including the Mining Community). Table 3 presents a summary. It should be noted

that specific questions may be pertinent to the WA School of Mines, the Eastern Goldfields Technical College, or both institutions. In some instances, a particular factor will have different implications for each institution. For example, while it is alleged that there is a low level of resource utilisation at the School, resources at the Technical College are inadequate and subject in some instances to unacceptably high levels of utilisation. Some specific factors cannot be identified under one broad category, although for convenience they are treated in this way in the following Table. For example, "Development of a mining school of excellence" can be considered as a factor in any one of the three categories. While the limitations of the schema are readily acknowledged, it was considered essential to seek some synthesis to assist in the evaluation of the various model solutions which were either proposed in the submissions or subsequently developed by the Commission during its deliberations.

TABLE 3

THE FUTURE OF THE WA SCHOOL OF MINES AND THE EASTERN GOLDFIELDS TECHNICAL COLLEGE: A SUMMARY OF RELEVANT FACTORS

Economic
1. Level of enrolments
2. Demand for enrolment places
3. Demand for graduates
4. Utilisation of resources
5. Costs of operation
6. Location of the School in relation to - mineral developments
7. Duplication of courses and resources
8. Co-operation between the School and the College
Educational
1. Quality of education
2. Recruitment of staff
3. Location of the School in relation to - other educational institutions - preparation for employment
4. Development of a mining school of excellence
Community
1. Decentralisation
2. Relationship between the School and the College and the community

Possible Models

48. The Commission considered several possibilities, including those put forward initially in the Partridge Committee Report (p 131). While basically the Commission's alternatives are similar to those of Partridge, there are some differences. The Commission's possibilities are grouped into two major categories depending on whether the tertiary courses are retained in Kalgoorlie or transferred to the Bentley campus of WAIT. They are:

(i) To move the tertiary courses to Bentley, and

(a) develop the School of Mining and Mineral Technology on the Bentley campus; and

(b) develop a comprehensive institution at Kalgoorlie using the WA School of Mines campus.

(ii) To retain the tertiary courses at Kalgoorlie, and

(a) maintain the *status quo*, i.e., two separate institutions with limited co-operation; or

(b) develop an integrated single institution with its own executive authority; or

(c) develop a federation of institutions with some formal prescribed co-operative arrangements.

Relocation of the Tertiary Courses at the Bentley Campus

49. With respect to the specific questions that have been raised earlier, the Commission's investigation and the submissions received point to the following reasons in favour of the transfer:

(i) Better educational programmes for students can be provided as a result of

- an increased number and wider range of subject specialisations
- broader cross-section of staff expertise
- availability of more units of study
- improved provision for multi-disciplinary studies
- improved facilities
- recruitment and retention of staff.

(ii) Some increase in enrolments in the School may occur in response to the wider appeal of metropolitan based courses.

(iii) The recurrent costs per student can be reduced from the present $9 845 per EFTS to $8 086 immediately following relocation and, eventually, to $6 000. This would represent an immediate annual saving of $200 000 (18%) and $446 000 (40%) in the long run. (See Appendix 4)

(iv) More comprehensive facilities would be available for research and service work.

50. Factors which are proposed in favour of retention of the WA School of Mines at Kalgoorlie are as follows:

(i) Field experience and project work are educationally more easily integrated within the courses of study offered.

(ii) The relationship between the School as a research centre and industry is more effective.

(iii) It is important for students to work in a mining environment in preparation for work in remote areas.

(iv) The Kalgoorlie site represents a considerable capital investment which it may not be possible to relocate at Bentley.

51. Other relevant factors more difficult to assess are:

(i) The Institution of Engineers (Australia) is the professional accrediting body for engineering courses offered in Australia. A submission to the Minister for Education indicated that recognition of general engineering studies offered at the School is effective to 1980. Decline in student numbers threatens not only continued recognition of these studies but also the course in Mining Engineering.

(ii) The dual site operation of some courses involves some duplication of the units of study offered. For example, although the first two years of the courses in extractive and engineering metallurgy have the same units of study, the programme is

offered at Kalgoorlie and Bentley. As a consequence of the small number of enrolments, students studying mining geology complete the first two years of the course at Bentley.

(iii) The WA School of Mines is still one of the three largest institutions of its type in Australia and its graduates are readily employed.

(iv) The importance of the social and economic effects on Kalgoorlie and Boulder of moving the School.

52. It is also difficult to evaluate the divided opinion on the preferred future location of the WA School of Mines:

(i) The Council of WAIT, at a meeting on 22nd June, 1977, favoured retention of the School at Kalgoorlie. The Council resolved:

that subject to guarantees of capital/recurrent funds from the Commonwealth Government, and from the State Government as is appropriate and/or necessary in the future, in order to develop and maintain the WASM at Kalgoorlie as a centre of quality in mining education without disadvantaging students in other fields of study in the Institute, by the diversion of disproportionate resources, Council supports the retention of the School in its present location as a Branch of WAIT with close links with the Eastern Goldfields Technical School to achieve rationalisation and reasonable economy by the common use of resources and co-operative planning of courses.

(ii) There is strong support from many senior academic staff at WAIT for a move to Bentley.

(iii) While the Principal of the School strongly argues for retention of the School at Kalgoorlie, the Heads of Departments within the School of Mining and Mineral Technology favour the move to Bentley. Some of the academic staff at the WA School of Mines support relocation of the School at Bentley.

(iv) Students currently enrolled at the School strongly favour a Kalgoorlie based school.

(v) The Chamber of Mines view, and that of a number of industry representatives, is that the School should remain in Kalgoorlie and be developed as a centre of excellence.

(vi) There is strong support from a number of groups/organisations in the Eastern Goldfields for retention of the School in Kalgoorlie.

The future of the Eastern Goldfields Technical College if the WA School of Mines is Relocated at Bentley

53. A number of institutional models with respect to the College may be considered, ranging from continuation of the *status quo* albeit with the College relocated on the WA School of Mines campus, to an autonomous community college responsible to the Technical Education Division. In the event of relocation of the WA School of Mines, the Commission considered that the College should be established on the vacated WA School of Mines campus, with subsequent development as required. The Commission was also informed on a number of occasions of the need to increase local involvement in the Technical College. The development of a community college model, with a college executive body, including local community representation, would provide the basis for increased community involvement and the potential to be more responsive in identifying and satisfying the local educational needs. In proposing the development of a community college, the Commission would wish to stress that it does not regard rejection of this proposal as sufficient reason to reject the other part of the proposition, i.e., relocation of the WA School of Mines in Perth. It does, however, see the potential for a more effective solution if the Technical College is developed into a community college. An appraisal of pertinent developments in other States in Australia was therefore pursued.

54. Studies undertaken by the Department of Further Education in South Australia and a special committee established in New South Wales provided valuable material for exploring community college models based on existing technical and further education institutions.(2) Both reports are extensive and, in the context of this report, attention is focused on what are considered to be the key issues:

(i) the need for a community college rather than a technical college in the Eastern Goldfields;

(ii) the means of providing a college executive authority appropriate to meet the needs identified in (i); and

(iii) the powers, functions and responsibilities of the executive authority.

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(2) Department of Further Education, South Australia, *Submission to the Committee of Enquiry into Post-Secondary Education*, Part III - Section B, Community Colleges, Government Printer, South Australia, undated.

Committee of Enquiry (Mr. P.M. Correy, Chairman), *Community Colleges*, Report of the Committee on the application of the community college concept in the Orana and New England Regions, Ministry of Education, Sydney, 1977.

55. Assessment of the above reports, particularly the New South Wales investigation, indicated that a number of educational needs had been identified and were relevant to the situation in the Eastern Goldfields. Increased relevance of the institution to the community it purported to serve was considered essential in preventing a rural exodus, particularly of the younger age groups. (Evidence cited earlier in this report indicates this is a problem in the Eastern Goldfields.) Increased community participation and responsibility is seen as an integral part of the community's association with its education institutions. There is a need to provide for a wider range of courses which are more flexible to changes in community needs and demands, and which can be assessed and assigned priorities by members of the community. Part of this more flexible approach should include awareness of, and response to, the needs of correspondence students located in the region who are studying through Perth based institutions.

56. A community college model of this type has the potential to resolve some of the specific issues associated with the Eastern Goldfields Technical College. Evidence indicates that the present community image associated with the College is not solely based on the poor college facilities, nor on the relatively superior position attributed to the WA School of Mines. While the degree of community participation in the affairs of the College appears to have been soundly based, it is inevitably rather limited, given existing administrative arrangements.

57. However, while acknowledging limitations in this respect, the Commission considers that the second integral part of the link between college and community - community responsibility - is not provided in the present circumstances.

58. Means for providing a desirable community - college relationship would be difficult to achieve in Western Australia within the terms of existing legislation. Acceptance of a community college model, as proposed, requires a shift of decision making powers and responsibilities, from the central executive authority, i.e., the Technical Education Division within the Education Department, to a college executive body. In South Australia and New South Wales provision for such an initiative is prescribed in the relevant legislation. For example, in New South Wales the Minister for Education may, with respect to a college:

(i) establish a college council;

(ii) delegate powers, authorities, duties and functions; and

(iii) specify the delegated powers, authorities, duties and functions.

59. The decision on the future administration of technical and further education in Western Australia will clearly have basic implications for possible solutions.

60. Other reports have drawn attention to the need to preserve a flexible approach in establishing a community college model for a specific locality. This approach is endorsed with respect to the Eastern Goldfields Technical College. Nevertheless, there is a number of powers, functions and responsibilities which the Commission considers would be delegated to the executive council of a community college based on the existing Technical College. The executive council would have, for example:

(i) planning responsibilities including -
- participation in the planning of new buildings
- negotiation with other institutions with respect to co-operative arrangements for courses offered
- new vocational courses and modification of existing courses;

(ii) budget responsibilities including -
- management of the building maintenance budget
- management of the consumable and minor equipment budget
- management of the part-time and ancillary staff budget
- power to accept and manage funds obtained from non-government sources; and

(iii) general management responsibilities for -
- residential college(s)
- community use of college facilities.

61. There is need for a more detailed proposal should a decision be taken to develop the Eastern Goldfields Technical College as a community college. The transfer of responsibilities, as suggested, from a central executive to a college executive is an essential requirement. In this way such a college would have the potential to resolve many of the immediate issues facing the College and to meet the consequences of the relocation of the WA School of Mines on WAIT's Bentley campus.

Retaining the WA School of Mines at Kalgoorlie

62. The options to be examined which were identified earlier in the report are:

(i) to maintain the *status quo* of two separate institutions with limited co-operation; or

(ii) to develop an integrated single institution with its own executive authority; or

(iii) to develop a federation of institutions with some formal prescribed co-operative arrangements.

63. It would appear necessary to reject the first option, namely to maintain the *status quo*. The reasons, which have already been discussed, are as follows:

(i) the restricting of educational programmes;

(ii) high recurrent costs for the WA School of Mines;

(iii) low utilisation of WA School of Mines plant and equipment facilities - despite the arrangement whereby the Eastern Goldfields Technical College holds some classes there;

(iv) expensive duplication and limitation in the provision of courses to meet the needs of industry - notably at the technician and equivalent level of training; and

(v) the threat of possible withdrawal of recognition of courses by the Institution of Engineers.

64. Although it is easy to specify reasons why the *status quo* is not acceptable, it is not as easy to see solutions that will meet all of the problems specified. For example, it is probable that the implementation of proposed solutions will increase the utilisation of plant and equipment. However, it is not easy to see solutions that will increase the quality of the educational programme without exorbitant increases in costs. Nor is it possible to see any way to reduce significantly the cost per student while maintaining even the present level of educational provision. In the seeking of a possible solution attention was given to particular forms of the community college, a concept referred to earlier in this report.

The Community College as a Solution

65. While this institutional form was thought to be worthy of consideration, there was concern that models based on the concept should offer the potential to develop a fruitful relationship between the institution and the community. The Commission believes that factors such as the

nature of the governance of the institution, the provision for community participation and responsibility, the ability to translate perceived educational needs into an education form (albeit unconventional, if appropriate) and the effective use of a wider spectrum of community resources are factors which support consideration of specific forms of the community college concept for post secondary education in the Eastern Goldfields.

66. It became clear in the consideration of the structure of such an institution in terms of the nature of the campus, the academic organisation, the executive authority, the financial arrangements and the association with other educational institutions, that a number of permutations was conceivable. One model illustrating the notion of an integrated community college was considered in some detail.

Complete Integration of the Existing Institutions

67. Integration in this form encompasses all facets of the executive management of the college, for example, the college campus, the academic and administrative organisation within the college, the funding procedures, the nature of courses offered and the terms and conditions of employment for the college staff. In essence, the institution is based on the dissolution, wherever possible, of the existing delineation of the technical and further education and advanced education sectors. The college would be managed by its own executive council whose powers and responsibilities would be similar to those of the board of any autonomous institution. The academic organisation of the college would not reflect the existing departments and sections in the WA School of Mines and the Eastern Goldfields Technical College. While courses offered by the College would need to be identified where appropriate as advanced education approved courses for funding purposes, integration of teaching responsibilities is assumed. Staff of the College and the School would assume teaching responsibilities primarily in accordance with their particular competencies and experience, rather than in terms of the classification of the subject as part of a technical and further education, or advanced education course.

68. If the WA School of Mines is to stay in Kalgoorlie, a proposal based on the integrated community college concept would need to have the potential

to solve many of the specific issues raised at the beginning of this report and summarised in Table 3 (page 16). Initially, it may appear that the claimed locational advantages of retaining the WA School of Mines in Kalgoorlie would be supplemented by improvement in the utilisation of existing resources, rationalisation of future resource needs for the technical and further education and advanced education sectors, and the possibility of providing wider educational experiences. In essence, the integrated community college model seems to offer a solution to the economic and educational issues, retain the locational advantages attributed to Kalgoorlie and realise some of the desirable educational advantages of a larger institution. However, these potential gains are based on a high degree of co-operation between the staff of the existing institutions, and the acceptance and co-operation of the local community. The latter would certainly in part depend on the ability to preserve the "school of excellence" quality associated with the WA School of Mines, within the community college. Difficult budgetary decisions both within the institution and by the Education Department would need to be effected to foster development of a new concept institution, with no inherent guarantee of success. The Commission's investigation has suggested that obtaining the necessary degree of co-operation may be asking too much of the existing system and that the potential gains from integrated community college models will not be realisable. An alternative model was therefore considered.

A Federation of Post Secondary Education Institutions

69. In this model, limited integration would be evident in the executive management of the institutions, the academic and administrative organisation, the financial arrangements and the campus organisation. It is assumed that the existing academic departments and sections within the School and the College would be retained. Funding, therefore, would continue to be within the existing procedural framework for technical and further education and advanced education. It is conceivable that the college executive could have wider responsibilities than those currently exercised by technical college principals. They might include, for example, the selection and employment of senior college staff. While this model offers some prospect of integration of staff resources, the organisation and funding procedures would tend to enforce preservation of separate sectors and, hence, the courses within each sector.

70. At present the WA School of Mines and the Eastern Goldfields Technical College have advisory bodies with limited prescribed functions. Their primary role, which should be retained, is to provide a link between the institutions and the community. There is, however, little overlap between the two bodies in terms of membership and their functions are inevitably confined within the boundaries of institutional responsibilities. Replacement of these existing committees with a single body having more extensive advisory functions and membership was considered as a potentially more feasible alternative. The constitution of this committee's membership would require careful consideration, although the need to include representation from industry and commerce, other community interests and educationists is apparent.

71. In addition to the identification of specific educational needs in the Eastern Goldfields region, the proposed committee should be responsible for establishing and managing policies relating to resources in the two institutions. With respect to existing resources, more effective use of library, media, student and sporting facilities as well as general and special tuition space could be achieved. Planning of future resource requirements would be an integral part of this function. As previously indicated in this report, the Eastern Goldfields Technical College accommodation is in the main sub-standard and inadequate to meet scheduled class demand. The development of additional facilities for the College is an urgent task and should take place on, or adjacent to the WA School of Mines site so that a major integrated complex is the result.

72. It should be emphasised that the separate parts of the community college would retain identification with their parent organisation, i.e. the WA School of Mines with WAIT and the Eastern Goldfields Technical College with the Technical Education Division. However, each party must be prepared to concede some responsibility to an overall governing committee and central administration in order to effect useful integration. The specific nature of these compromises would need to be negotiated if this solution is preferred.

73. The potential success of this model depends on the identification and development of distinct roles while avoiding duplication of responsibility. Three key areas requiring careful consideration are:

(i) the established links, procedures and responsibilities between WAIT and the WA School of Mines and the Technical Education Division and the Eastern Goldfields Technical College respectively;

(ii) institutional acceptance of negotiations and making of a commitment to formalised agreements; and

(iii) the functions of the proposed joint advisory committee for the WA School of Mines and Eastern Goldfields Technical College.

74. Successful implementation of these policies within the existing institutional framework would afford the possibility of solving some of the specific issues alluded to at the beginning of this report. A more effective use of existing and future resources should follow, with improved provision of academic resources and greater flexibility in the courses offered. It is also considered that the co-operation and support of the community is more likely if this model is implemented.

75. Nevertheless, while this model may be preferred should the WA School of Mines remain in Kalgoorlie, it is not certain that some of the specific issues alluded to would be satisfactorily resolved. In particular, improvement in the quality of education offered by the School is likely to be limited. The advantages of the location of the School in Kalgoorlie in relation to the emerging orientation of the mineral industries are also open to question. In essence, while the proposal affords clear opportunities to improve the general situation of the WA School of Mines, the major impact will derive from the changed situation of the Eastern Goldfields Technical College. The economic issues such as resource utilisation, operational costs, duplication of courses and resource provision and rationalisation of future resource requirements will be resolved by a sharing of resources between the two institutions. The College will, as a result, have access to much needed improved facilities.

RECOMMENDATIONS

76. Throughout the discussions at sub-committee, committee and Commission levels opinion has been divided as to the appropriate recommendations to make. A strong but minority view is that the arguments favouring a consolidation of the courses of study on WAIT's Bentley campus are persuasive on educational and economic grounds.

77. The majority view of the Commission is that every effort should be made to retain at Kalgoorlie the present courses of study offered by the WA School of Mines. However, it does not find the *status quo* acceptable. The Commission is concerned that post secondary education for the Eastern Goldfields be developed systematically and comprehensively; that better utilisation of capital resources be achieved and that the physical facilities available for technical education be improved considerably.

78. Accordingly, the Commission, by majority vote, adopted the following resolution:

The Commission recommends that approval in principle be given to establish a federation of post secondary institutions in Kalgoorlie. In effecting the recommendation, a committee be established by the Commission, with representation from the Education Department, the Western Australian Institute of Technology and the Commission, to make recommendations to the Commission for consideration on:-

(i) detailed proposals for the development of the federation of institutions, which should include provision for appropriate formal co-operative agreements between the Western Australian Institute of Technology, the Education Department and other relevant institutions;

(ii) proposals for the gradual development of a community college within the federation of institutions, together with appropriate investigation of the steps needed for this to evolve into an integrated institution;

(iii) the additional funding that may be necessary to establish and operate functional institutions.

8 September, 1977.

TABLE 1A

STUDENT ENROLMENTS WA SCHOOL OF MINES 1968 - 1977

	1968	1969			1970			1971			1972			1973			1974			1975			1976			1977		
	TOTAL	FT	PT	TOT	FT	PT	TOT	FT	PT	TOT	FT	PT	TOT	FT	PT	TOT	FT	PT	TOT	FT	PT	TOT	FT	PT	TOT	FT	PT	TOT
GRADUATE DIPLOMAS																												
Metallurgy																					3	3		3	3	3	17	20
DEGREES																												
Business														3	9	12	4	7	11	20	21	41		26	26	4	22	26
Applied Science (Civil/Elect.Engineering)																				12	1	13	12	6	18	1	4	5
Applied Science (Mining Geology)																										5	1	6
														3	9	12	4	7	11	32	22	54	12	32	44	10	27	37
ASSOCIATESHIPS																												
Accounting/Commerce					1	16	17	6	15	21	7	21	28	2	8	10		3	3		3	3		1	1		3	3
Engineering (Civil/Electrical, etc)	25	10	27	37	14	22	36	9	28	37	6	24	30	11	20	31	18	22	40	12	8	20	4	4	8	1	3	4
Geology	14	10	8	18	15	16	31	19	13	32	9	15	24	3	15	18	7	9	16	3	3	6	3		3			
Metallurgy	20	5	13	18	7	12	19	9	13	22	14	18	32	19	23	42	26	15	41	21	14	35	18	10	28	20	9	29
Mining Engineering	36	12	14	26	16	13	29	18	22	40	22	27	49	35	17	52	28	25	53	34	19	53	36	16	52	37	17	54
	95	37	62	99	53	79	132	61	91	152	58	105	163	70	83	153	79	74	153	70	47	117	61	31	92	58	32	90
DIPLOMAS/CERTIFICATES																												
Engineering (Draughtsman)	9																											
Mining Technology/ (Surveying/Ventilation)	46	3	46	49		26	26		19	19		9	9		15	15	1	12	13	3	15	18		12	12	1	12	13
Mine Management (2nd Class)	5																											
Other	3																											
	63	3	46	49		26	26		19	19		9	9		15	15	1	12	13	3	15	18		12	12	1	12	13
MISCELLANEOUS (including preparatory/ qualifying subjects)	139	2	95	97		55	55		46	46		40	40		23	23		24	24		21	21						
TOTAL ENROLMENTS:	297	42	203	245	53	160	213	61	156	217	58	154	212	73	130	203	84	117	201	105	108	213	73	78	151	72	88	160

SOURCE: Data supplied by the Western Australian Institute of Technology

NOTE : FT = Full time enrolments; PT = Part time enrolments (including external enrolments); TOT = Total enrolments
Enrolments 1969 - 1977 are as at 30 April in each year.

TABLE 1B

STUDENT ENROLMENTS & EQUIVALENT FULL TIME STUDENT (EFTS) ENROLMENTS

SCHOOL OF MINING AND MINERAL TECHNOLOGY, INCLUDING THE WA SCHOOL OF MINES 1969 - 1977

FIELDS OF STUDY	1969		1970		1971		1972		1973		1974		1975		1976		1977	
	TOTAL	EFTS	TOTAL	EFTS	TOTAL	EFTS	TOTAL	EFTS	TOTAL	EFTS	TOTAL	EFTS	TOTAL	EFTS	TOTAL	EFTS	TOTAL	EFTS
Business and Allied Studies			17	10	21	14	28	18	22	13	14	10	44	32	27	14	29	16
Engineering																		
- Civil/Elect./Mechanical	37	24	36	25	37	23	30	19	31	21	40	29	33	29	26	21	9	7
- Mining (incl.Mining Tech)	75	44	55	35	59	38	58	40	67	51	66	47	71	54	64	50	67	51
Geology	18	14	31	23	32	25	24	17	18	11	16	12	6	5	3	3	6	6
Metallurgy	18	12	19	13	22	16	32	22	42	30	41	33	38	29	31	24	49	38
Miscellaneous	97	50	55	27	46	23	40	19	23	12	24	12	21	10				
WA SCHOOL OF MINES	245	144	213	133	217	139	212	135	203	138	201	143	213	159	151	112	160	116
Geology (Bentley)	34	27	81	65	108	92	84	69	60	52	47	30	32	31	28	24	30	25
Metallurgy (Bentley)	25	17	40	26	43	28	46	32	54	35	48	33	41	33	43	39	34	24
TOTAL BENTLEY	59	44	121	91	151	120	130	101	114	87	95	63	73	64	71	63	64	49
SCHOOL OF MINING & MINERAL TECHNOLOGY (i.e. WA SCHOOL OF MINES & BENTLEY BASED STUDIES)	304	188	334	224	368	259	342	236	317	225	296	206	286	223	222	175	224	165

SOURCE : Data supplied by the Western Australian Institute of Technology.

NOTE: (1) Calculation of Equivalent Full Time Students (EFTS) provides a measure of workload which follows from a given student enrolment. The formula used is: EFTS = Full time students + .5(Part time students)

(2) The School of Mining & Mineral Technology was not formed until 1975. For comparative purposes the Bentley based courses which together with the courses offered at the WA School of Mines make up this school, have been included for prior years.

TABLE 1C

ENROLMENTS

EASTERN GOLDFIELDS TECHNICAL COLLEGE

1973 - 1977

Field of Study	1973	1974	1975	1976	1977 (Preliminary)
Diplomas					
Arts & Design				1	14
Business Studies	61	65	50	66	50
Engineering					
- General	24	23	29	23	9
- Mining				1	
- Surveying (incl. Mining Surveying)	14	13	13	25	32
Environmental Health				11	6
	99	101	101	127	111
Certificates					
Applied Science				1	14
Art & Design				113	80
Business Studies	2	1	3	54	51
Engineering					
- General	155	104	138	49	32
- Surveying	8	2		2	
	165	107	141	219	177
Apprenticeships					
Pre-apprentice					21
Automotive				62	65
Building				53	30
Engineering	106	139	195	177	214
	106	139	195	292	330
Other					
Secondary Education/ Matriculation	157	157	183	137	60
Adult Education	1 184	1 101	1 672	1 496	567
	1 341	1 258	1 855	1 633	627
TOTAL:	1 711	1 605	2 292	2 271	1 245
Full time Students (included in the Total)	56	62	41	46	66

Source: Data supplied by the Technical Education Division of the Education Department of Western Australia.

Note: (1) Enrolments for 1973-1976 are annual totals, 1977 enrolments are as at 1 April.

(2) Full time students are defined as those enrolled for 20 hours or more of tuition per week.

TABLE 1D

STUDENT ENROLMENTS IN MINING & MINERAL TECHNOLOGY COURSES* AT TERTIARY EDUCATION INSTITUTIONS IN WESTERN AUSTRALIA 1975-1977

	PERMANENT ADDRESS POST CODE														
	Eastern Goldfields Statistical Division			Metropolitan Statistical Division			Rest of Western Australia			Rest of Australia & Overseas			Total		
	1975	1976	1977	1975	1976	1977	1975	1976	1977	1975	1976	1977	1975	1976	1977
WAIT School of Mining & Mineral Technology	77	43	50	104	90	86	35	28	37	2	5	5	218	166	178
WA School of Mines (incl. in School of Mining & Mineral Technology)	*76*	*43*	*50*	*30*	*15*	*22*	*27*	*22*	*29*				*133*	*80*	*101*
Murdoch University				2	7	11	1	7	6			1	3	14	18
University of Western Australia	3	2	1	70	75	73	5	5	3	3	8	10	81	90	87
TOTAL (including School of Mining & Mineral Technology)	80	45	51	176	172	170	41	40	46	5	13	16	302	270	283

Source: Data supplied by the Institutions.

* The courses included for the above institutions are those incorporated in Table 2, page 13 of this report.

TABLE 1E

TERTIARY EDUCATION STUDENT ENROLMENTS WITH A PERMANENT ADDRESS POST CODE WITHIN THE EASTERN GOLDFIELDS STATISTICAL DIVISION 1975 - 1977

	1975				1976				1977			
	FT	PT	EXT	TOTAL	FT	PT	EXT	TOTAL	FT	PT	EXT	TOTAL
Murdoch University	5	-	8	13	5	-	31	36	6	-	31	37
University of Western Australia	61	7	22	90	43	7	-	50	57	5	-	62
Teachers Colleges	N/A	N/A	N/A	N/A	63	10	-	73	59	11	9	79
WA Institute of Technology	119	116	45	280	94	82	61	237	85	76	60	221
WA School of Mines (included in WAIT total)	*70*	*80*	*3*	*153*	*23*	*64*	*7*	*94*	*30*	*59*	*9*	*98*
TOTAL ALL INSTITUTIONS:					205	99	92	396	207	92	100	399

Source: Data supplied by the institutions.

TABLE 1F

STUDENT ENROLMENTS

TECHNICAL EXTENSION SERVICE

WITH A RESIDENTIAL ADDRESS POSTCODE WITHIN THE EASTERN GOLDFIELDS

1974 - 1977

	1974	1975	1976	1977 (preliminary)
Esperance	52	182	157	80
Kalgoorlie/Boulder	149	250	288	58
Kambalda	67	155	160	84
Eastern Goldfields - including above townships (i.e. South East Statistical Division)	340	794	850	303
Western Australia	6 572	13 086	14 602	4 651

Source: Data supplied by the Technical Education Division of the Education Department of Western Australia.

Note: Enrolments for 1974-1976 are annual totals, 1977 enrolments are as at 1 April.

TABLE 1G

FINAL YEAR SECONDARY SCHOOL ENROLMENTS

(Total Enrolments for all years of secondary school in brackets)

EASTERN GOLDFIELDS 1970 - 1977

Schools	1970	1971	1972	1973	1974	1975	1976	1977 (Preliminary)
Kalgoorlie								
St Patricks CBC	11 (180)	11 (170)	16 (169)	21 (164)	25 (156)	14 (145)	13 (146)	22 (152)
Boulder								
Eastern Goldfields SHS	43 (1026)	51 (1056)	47 (1124)	54 (1240)	69 (1062)	53 (1063)	66 (1114)	65 (1148)
Prendiville Coll.		- (178)	11 (201)	12 (219)	17 (214)	18 (217)	18 (205)	18 (213)
Esperance								
Esperance SHS	- (382)	- (440)	37 (505)	23 (513)	31 (560)	50 (598)	42 (625)	46 (684)

Source: Data supplied by the Education Department of Western Australia.

APPENDIX 2

LABOUR REQUIREMENTS FOR PROFESSIONAL OCCUPATIONS IN MINING & MINERAL EXPLORATION IN WESTERN AUSTRALIA 1977 - 1979

1. The Commission considered it necessary to make an assessment of the present and future requirements for manpower in mining and mineral exploration in Western Australia. Information for professional occupations was made available by the Principal of the WA School of Mines. The Chamber of Mines in Western Australia agreed to forward to the Commission the results of its comprehensive survey of manpower requirements for all occupations pertinent to mining and mineral exploration in the State. Results for professional occupations are now available.

Scope of the Survey

2. The survey is concerned with mining and preliminary processing operations in Western Australia, i.e., mineral exploration, mineral extraction, smelting and concentration. Construction and secondary processing, e.g., refining, are not included. Results are based on virtually a 100% return from relevant operatives who are affiliated with the Chamber of Mines. (Three firms are not included as they have not as yet forwarded questionnaires.) Non-affiliated operatives are also not included, e.g., contract mining firms. Nevertheless, the coverage of the survey is considered sufficiently comprehensive to allow the results to be regarded as indicative of State requirements.

3. Since the survey is based on mineral exploration, extraction and initial processing, a number of related professional occupations and courses providing pertinent qualifications are excluded from this report, e.g., engineering metallurgists, applied geologists. In reality, it is likely that this distinction cannot be rigidly applied in terms of specific occupations and the qualifications held by the occupants, e.g., an extractive metallurgist's qualification(s) might be based on competencies in engineering metallurgy rather than extractive metallurgy.

4. Future development in the industry is dependent on favourable circumstances arising from a number of uncertain and interrelated factors, e.g., government policies, availability of and terms associated with finance, and the state of relevant world markets. The survey is therefore based on current operations, and developments in an advanced state of preparation which are expected to become operational by the end of 1979, e.g., Agnew Nickel project. Scope for further development is discussed in the report.

Methodology of the Survey

5. Firms affiliated with the Chamber of Mines and responsible for operation(s) in Western Australia were requested to supply information on a detailed occupational basis for current budgeted workforce, current shortages and future requirements after provision for replacement. Future requirements were requested on a minimum, maximum and most probable basis. The results incorporated in this report follow the latter course as the divergence between minimum and maximum perceived needs was not great.

6. Replacement has been provided for at a rate of 10% per annum. Assessment is industry based within Western Australia and includes provision for retirements, deaths and losses to allied and service industries. In view of the relatively unattractive conditions associated with many of the locations for the industry's operations, the assumed replacement rate of 10% per annum is not considered excessive.

7. The expressed requirements based on relevant professional occupations do not distinguish between inexperienced and experienced operatives. While a proportion of total requirements in each occupation is assumed to be experienced as well as qualified personnel, no estimate is available of the relevant proportion.

Survey Results

8. Results summarised in the appended table are presented in terms of current shortages and total additional requirements (including current shortages), by the end of 1979. Figures for the State have been allocated by the Chamber of Mines to one of three regions delineated as follows:

North - all of the State north of the 26th parallel, i.e., North of Shark Bay. The Pilbara is the principal mining area included in the region.

South - all of the State south of the 26th parallel and west of a line through Shark Bay and Albany. The principal operations included are bauxite, mineral sands, coal and natural gas.

East - the remainder of the State, including the Eastern Goldfields.

9. Results indicate current shortages principally relate to engineers- specifically mechanical and then mining and electrical engineers. Future requirements are expected to be, in order of priority, for mechanical engineers, mining engineers, geologists and metallurgists. In regional terms, the greatest aggregate demands are for the Northern region, then the Eastern region and, at a substantially lower level, the Southern region. Occupational needs are not uniform between regions. The Northern region has, because of the nature of the mining and processing operations, a relatively greater demand for mechanical rather than mining engineers. The high demand for geologists in the Eastern region indicates the relative emphasis on exploration activity in that part of the State and, again, the nature of extraction and processing operations in the Eastern region results in a higher demand for mine surveyors and extractive metallurgists.

Assessment

10. Assessment of future requirements for graduates from relevant courses is, as has been suggested, to be made subject to a number of uncertainties, namely the proportion of experienced operatives included in total requirements; and the implementation programme for future developments.

With respect to the latter, although the survey is based on current and "known" future operations within the time period considered, other initiatives are currently under consideration. For example:

- in the Northern Region - Area C and Texas Gulf iron ore projects
- in the Southern Region - Wagerup and Pacminex bauxite projects
- in the Eastern Region - Teutonic Bore - copper, lead and zinc and, at Yeelirrie, uranium.

Of these projects, the bauxite proposals are all but certain to proceed and become operational within five years. It is reasonable to be optimistic about the other projects, although the timing relevant to each is uncertain.

11. Graduate numbers are essentially fixed until 1980 and if the estimated requirements are well founded, it is possible that the number of graduating students will not meet requirements. While demand for graduates from the relevant courses is characterised by sudden and significant shifts in terms of the numbers required, it is not possible rapidly to adjust output from courses, even assuming the requisite number of students will enrol in the courses concerned. Further constraints on adjustment of student intakes in relevant courses and, hence, the scale of operations in the education institutions are imposed by the specialised nature of the courses and, in the case of the WA School of Mines, the small scale of its total operations.

12. In more general terms, the results of the Chamber of Mines Survey suggest, in the short term at least, more buoyant prospects in terms of professional manpower requirements for the mineral exploration and mining industry in Western Australia.

13. It should be noted that the results of this survey are consistent with those arising from the survey conducted by the Principal of the WA School of Mines.

TABLE 2A

LABOUR REQUIREMENTS - PROFESSIONAL OCCUPATIONS

MINING & MINERAL EXPLORATION

WESTERN AUSTRALIA : 1977 - 1979

Occupation Categories	PROFESSIONAL LABOUR REQUIREMENTS BY REGION											
	Current Actual Workforce				Current Shortage				Total Additional Needs Until Dec. 1979			
	Northern	Eastern	Southern	TOTAL	Northern	Eastern	Southern	TOTAL	Northern	Eastern	Southern	TOTAL
ENGINEERS												
- Civil	28	7	4	39	4	-	-	4	11	4	1	16
- Electrical	45	7	12	64	5	3	-	8	15	7	3	25
- Mechanical	144	25	40	209	8	2	8	18	46	9	24	79
- Mining	55	52	14	121	3	5	-	8	20	21	4	45
GEOLOGISTS												
- Mining	29	103	23	155	1	-	-	1	8	28	7	43
METALLURGISTS												
- Extractive	29	41	16	86	2	2	-	4	10	20	4	34
SURVEYORS												
- Mining	15	36	12	63	-	-	1	1	5	12	3	20
TOTAL ALL PROFESSIONAL OCCUPATIONS:	345	271	121	737	23	12	9	44	115	101	46	262

Source: Data from a survey conducted by the Chamber of Mines, Western Australia.

APPENDIX 3

SURVEY OF UTILISATION OF TUITION SPACE AT THE WA SCHOOL OF MINES

1. A survey of space utilisation was conducted during the Autumn semester this year for all tuition space at the WA School of Mines. Although some variation in utilisation can be expected throughout the academic year, it is considered that the survey provides a reasonable indication of annual utilisation. The assessment was based on scheduled classes and therefore excludes informal use of the facilities by staff and students. The Eastern Goldfields Technical College has been accommodated in the WA School of Mines for approximately 50 hours of its total class hours.

Inventory of Tuition Space

2. Twelve general classrooms are available - 4 rooms for small group activities (tutorials, seminars for less than 20 persons), 7 rooms for lectures (up to 30 persons), 1 lecture theatre (156 seats).

With respect to specialist facilities (laboratories, workshops, drawing rooms, computation rooms etc.), a functional interpretation of tuition areas was used. For example, where a number of peripheral laboratories are associated with a key laboratory, the complex of tuition areas has been considered as "one laboratory". Fourteen areas were included in the survey.

Survey Results

3. Results have been summarised to provide room utilisation and average class size information both for general classrooms and for specialist facilities.

Room Utilisation

4. (i) General Classrooms: For the teaching week (Monday to Friday), the average daily usage per room is slightly less than 3 hours. If the 50 hours of usage by the Eastern Goldfields Technical College is included, the average daily usage per room increases to approximately 3.5 hours.) The average daily usage for each room varies considerably, from 6 hours per day to zero utilisation (for one room).

(ii) Specialist Facilities: For the teaching week, the average daily usage per specialist facility is less than 1 hour. As with general classrooms, the average daily usage per facility varies considerably, from approximately 3 hours per day (in two areas) to zero (in nine areas).

5. The complexities of class time tabling and room scheduling make it difficult to establish norms for what might be considered an acceptable level of utilisation for general classrooms and specialist facilities. The average daily usage (Monday to Friday, inclusive) for non-specialist rooms on the Bentley campus of WAIT in the 1976 Autumn Semester was 6 hours (compared with 3 hours for the WA School of Mines in 1977). The average daily usage (Monday to Friday, inclusive) for specialist

facilities in the Physics, Chemistry, Geology, Metallurgy and Engineering Departments at Bentley in the 1976 Autumn Semester was approximately 3 hours (compared with less than 1 hour for the WA School of Mines specialist facilities). Although utilisation of tuition areas at the two campuses is not strictly comparable, the Bentley utilisation data give some indication of an achievable level of utilisation both for non-specialist and for specialist types of facilities.

6. On the basis of the results of this survey, it is apparent that there is significant under-utilisation of tuition space at the WA School of Mines.

APPENDIX 4

OPERATIONAL COSTS FOR THE WA SCHOOL OF MINES

1. Reference was made in the Partridge Report (p.129) to the significantly higher cost per equivalent full time student enrolled at the WA School of Mines as compared with that for similar disciplines in Perth. There was considerable debate following the release of the Partridge Report, not only in relation to the reliability of the estimated cost differential, but also on the validity of the comparison. The Commission considered that reliable cost information was essential to a proper investigation of issues associated with the WA School of Mines. Furthermore, the basis for cost comparison would be more useful if costs were determined for -

   (i) location of the School in Kalgoorlie *(status quo)*; and

   (ii) relocation of the School at the Bentley campus of WAIT.

2. Information has been made available to the Commission on the above basis. Relocation of the School at Bentley has been considered in two distinct phases -

   (i) costs calculated immediately following relocation of the School; and

   (ii) costs calculated on the basis of achieving maximum effective use of resources at some time in the future.

   It has been considered reasonable to assume that immediately following relocation some integration, where appropriate, of transferred WA School of Mines resources (including staff) is effected within the existing Bentley campus organisation. In the longer term "maximum effective use of resources" - in a sense an optimizing level of operation - is based on the achievement of Institute accepted student-staff ratios for the academic departments concerned. (For the Department of Metallurgy or Mining Engineering, student-staff ratio norms have not been established; so it was necessary to determine arbitrarily norms based on ratios established for similar departments.) The defined optimizing situation may be achieved in any one of the following circumstances -

   (i) the necessary growth in student enrolments will occur in order to utilise fully existing staff resources;

   (ii) staff retirements, resignations, etc. will reduce staff resources to the level required for existing student enrolments; or

   (iii) some combination of (i) and (ii), i.e., some enrolment growth and reduction in staff resources through retirements, resignations, etc. will occur.

   In this exercise, "optimizing" costs are based on current student enrolments i.e., (ii) above.

3. It should be emphasised that the results of such an exercise must inevitably be based on a number of methodological assumptions; for example, it has been assumed that all full-time salaried staff currently employed at the WA School of Mines in Kalgoorlie would transfer with the School, and their particular competencies would be appropriate in the relevant departments located at Bentley. It is also assumed wages staff would remain in Kalgoorlie and, following a decision to relocate the School at Bentley, would no longer be a financial responsibility of the Institute. Nevertheless, the Commission is of the opinion that the information provided is useful in assessing the significance of operational costs associated with the WA School of Mines.

RESULTS

4. Results of the exercise are expressed in 1977 (i.e. annual) operational costs at current prices. Total costs are identified in terms of departmental, school and institute costs. Costs are therefore allocated to these three cost centres. For example, academic and technical staff salaries are regarded as departmental costs; light, power and telephone charges, maintenance costs and the costs associated with the principal's office are regarded as school costs; and costs associated with student counselling, admissions, examinations and external studies are regarded as institute costs. In the latter case a proportion (based on student enrolments) of the total institute costs is assigned to the WA School of Mines. Results are summarized in the following table.

TABLE 4A

ANNUAL OPERATIONAL COSTS FOR THE WA SCHOOL OF MINES

(Based on 1977 costs expressed in current prices)

	Location of the WA School of Mines		
	Kalgoorlie	Bentley (after relocation)	Bentley (maximising use of resources)
Departmental Costs ($000)	488	468	279
School Costs ($000)	563	379	326
Institute Costs ($000)	91	91	91
Total Costs ($000)	1142	938	696
Equivalent Full Time Students Enrolled (E.F.T.S.)	116	116	116
Cost per E.F.T.S. ($)	9845	8086	6000

Source: Information supplied by the Western Australian Institute of Technology.

5. Relocation of the School at Bentley would effect an immediate estimated annual saving of approximately 18%, or $200 000. In the longer term and achieving maximum effective use of resources a total reduction is indicated of approximately 40%, or $446 000. As the costs associated with each cost centre suggest, the magnitude and pattern of cost saving changes from the immediate to the longer term or optimizing situation. Initial savings are expected to arise principally through reduction in costs centred in the School, i.e., use of cheaper, Bentley based services for maintenance and the use of cheaper power, light and telephone services. In the longer term, further reduction in total operating costs is centred in the teaching departments. Integration of WA School of Mines staff into existing WAIT departments and the achievement of Institute established student-staff ratios in the relevant departments are expected to effect a substantial reduction in total costs.

6. In broad terms, the exercise indicates that there is a substantial operational cost differential associated with location of the WA School of Mines in Kalgoorlie as compared with Bentley (i.e. $9845 per EFTS compared with $8086 per EFTS). Looking to the longer term, there is evidence of substantial excess capacity of resources. To make effective use of these resources student enrolments would need to increase significantly (i.e., to approximately 200 EFTS); or a reduction in the staff establishment (principally academic staff) would be needed; or a combination of increase in student enrolments and reduction in the staff establishment of the School would be required.

APPENDIX 5

RECRUITMENT OF STAFF FOR THE WA SCHOOL OF MINES

1. The Partridge Report (p.130) drew attention to the apparent difficulty experienced in filling staff vacancies at the WA School of Mines. Evidence presented to the Commission suggested the situation had recently considerably improved and that the School had been able satisfactorily to meet its requirements. Information has been made available to the Commission on staff recruitment at the WA School of Mines since the WA Institute of Technology assumed responsibility for the School in 1969. It should be noted that actual recruitment records were only available for more recent years. Nevertheless, the experience of the officers responsible for staff recruitment provides some useful information on the history of staff recruitment at the School.

Academic Staff

2. The number of applicants for positions in Kalgoorlie has generally been less than for those in Perth. It is reasonable to assume that the general isolation and associated circumstances of Kalgoorlie would in part be responsible, although the nature of the disciplines relevant to the positions and the state of the pertinent labour markets at the time would also have influenced the number of applicants. A number of factors influences the time lag between initial advertisement and appointment to a position, such as place of origin of applicants and the appointee, length of notice required and visa procedures for the appointee. It is thus difficult to establish trends in this regard, particularly when the number of positions is small. There is therefore no evidence of a significant difference in the time taken between advertising and filling positions in Kalgoorlie compared with Perth.

3. The Institute has considered it necessary to provide additional incentive for prospective appointees to academic positions in Kalgoorlie. Housing has therefore been provided at a favourable rent. (Government Housing Authority rental rates apply.) In spite of this provision, the circumstances associated with Kalgoorlie have placed some restriction on the selection of preferred candidates for positions. Recruitment has encompassed Australian States and overseas, as the following table of recent recruitments suggests:

Western Australia	Other Australian States	United Kingdom	Asia
8	5	4	2

4. The reason(s) for easier recruitment of academic staff in recent years cannot be precisely identified, although it seems reasonable to assume that the depressed state of the mining and mineral processing industries has had some influence.

Non-Academic Staff

5. Experience in recruiting non-academic staff indicates that it has been more difficult to obtain clerical and technical than academic staff for the WA School of Mines, the nature of positions, including salary level, inevitably confines recruitment to the Kalgoorlie area and limits the number and range of applicants. Furthermore, salaries offered in the appropriate salary grades are invariably higher in the mining and associated industries. No incentive in terms of staff housing is available for non-academic staff. Government staffing policies (e.g., staff promotion) virtually ensure that an adequate supply of staff is available in country areas for government departments. Policies of this kind are not regarded as feasible for the Institute.

Conclusion

6. In general terms, isolation and the general situation which pertains to relatively small localities has affected the recruitment of staff to the WA School of Mines in Kalgoorlie. It is also likely that the particular disciplines offered in the School and, hence, the nature of the staff required has also limited the supply of available appointees. This situation has been relatively more difficult with respect to non-academic staff, particularly clerical and technical appointments.

TABLE 6A

POPULATION IN CENSUS YEARS

SOUTH-EASTERN DIVISION (EASTERN GOLDFIELDS)

1966-76

	1966	1971	1976 (Preliminary)
Esperance Locality	2698	4874	5262
Kalgoorlie-Boulder Locality	19980	20865	19041
Kambalda Locality	N/A	4224	4784
Total for the Division (Including the above localities)	32609	40430	39915

Source: Australian Bureau of Statistics

Note : To maintain continuity in the data, the locality of Yilgarn has been excluded from figures for 1966 and 1971.

APPENDIX 6

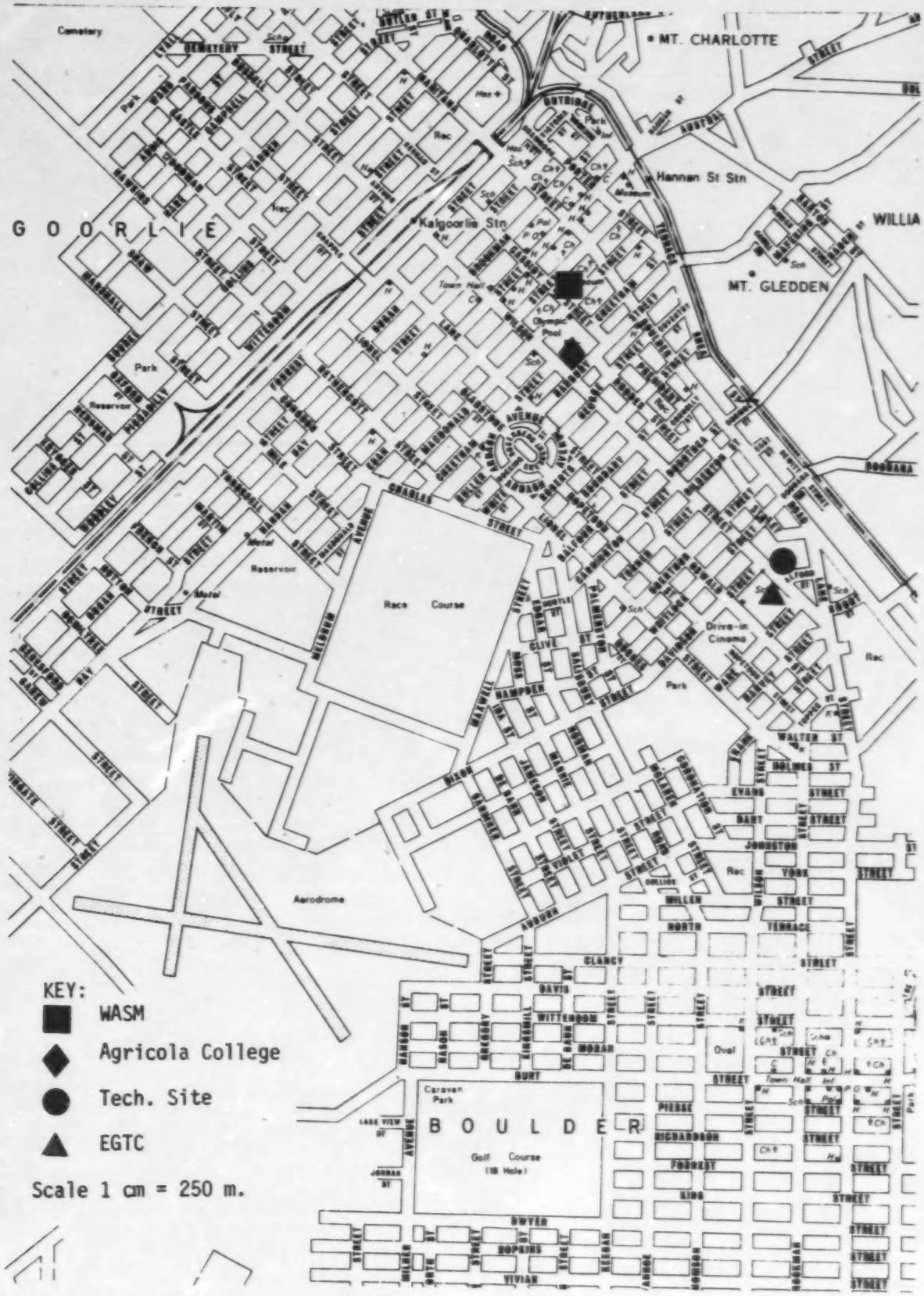
POPULATION STATISTICS FOR THE EASTERN GOLDFIELDS REGION, 1966, 1971 AND 1976.

'APPENDIX 7

STATISTICAL AREAS OF WESTERN AUSTRALIA INCLUDING
THE EASTERN GOLDFIELDS (I.E. SOUTH EASTERN DIVISION)

APPENDIX 8

STREET PLAN - KALGOORLIE/BOULDER



APPENDIX 9

SUBMISSIONS

The Commission received a number of submissions prior to its public invitation for submissions. Some correspondence to the Minister for Education was also referred to the Commission for consideration.

1. Council of Agricola College.
2. Institute Response to the Report on Post Secondary Education in WA - issued by the WAIT Council.
3. Principal of the WA School of Mines.
4. Messrs. Lloyd & Burns, members of the academic staff at the School of Mines.
5. WA School of Mines Advisory Board.
6. Joint Submission by the Town of Kalgoorlie and the Shire of Boulder.
7. Mr. Graeme Synnot.
8. Technical Education Division, Education Department of Western Australia.
9. Mr. M.E. Wearne, academic staff member WA School of Mines.
10. Mr. P.M. Wreford.
11. The Chamber of Mines of Western Australia.

Submissions received after the Commission's public invitation

1. Professor P.G. Harris, academic staff member University of Western Australia.
2. Dr. A. Gupta, academic staff member WA School of Mines.
3. Confederation of WA Industry (Inc.).
4. Dr. T. Pyle, WA School of Mines.
5. Dr. D.S. Tyrwhitt, Newmont Pty. Ltd.
6. L.V. Walsh, Deputy Principal, Eastern Goldfields Technical College.
7. WA School of Mines Students Association.
8. S.G. Morgan, 32 Tilton Terrace, City Beach.
9. Prof. A. Beacham, Murdoch University.
10. Australian Collieries Staff Association.

11. Association of High Schools Principals of WA.
12. G.G. Allen, Principal Librarian, WAIT.
13. D.J. Conway, Carmel.
14. State School Teachers Union of WA.
15. Dr. Power, academic staff member of the WAIT.
16. Mr. L.C. Brodie-Hall.
17. Chamber of Mines of Western Australia.
18. Australasian Institute of Mining & Metallurgy.
19. Eastern Goldfields Esperance Regional Development Committee.

APPENDIX 10

VISIT OF MEMBERS OF THE COMMISSION TO THE KALGOORLIE REGION

DISCUSSIONS HELD AND PERSONS IN ATTENDANCE

WA School of Mines and Agricola Residential College

Dr. I.O. Jones, Principal of the WA School of Mines
Most of the staff and some of the students of the School

Eastern Goldfields Technical College

Mr. J. Hardisty, Principal of the School
Most of the full time staff of the School
Two members of the College Advisory Board

Luncheon - Thursday

Dr. I.O. Jones and some members of the WA School of Mines Advisory Board

Mayor and Representatives of the Town of Kalgoorlie

Mr. R. Finlayson, Mayor, Town of Kalgoorlie
Mr. M. Morrison, Town Clerk
Mr. Julian Grill, MLA
Mr. Jack Cashman, North Kalgurli Gold Mines
Mr. T.D. Evans, MLA
Canon Apthorp, Anglican Church
Mr. L. Langoulant, Administrator, Kalgoorlie Regional Hospital

President and Representatives of the Shire of Boulder

Councillor D.C. Daws, President, Shire of Boulder
Mr. C.B.C. Jones, Councillor
Mr. P. Fitzpatrick, Councillor
Mr. J.R. Fitzgerald, Shire Engineer
Mr. B.J. Crew, Administrative Officer

Luncheon - Friday

Mr. B. Patterson, Resident Manager, Western Mining Corp.
Mr. D. Manning, Personnel Supt., Western Mining Corp.
Mr. G. Botica, Metallurgical Supt., Western Mining Corp.
Mr. D. Marshall, Chief Engineer, Western Mining Corp.
Mr. G. McHattie, Supplies Supt., Western Mining Corp.
Mr. T. Palmer, Mine Supt., Western Mining Corp.
Dr. G.D. Loftus-Hill, Chief Geologist, Western Mining Corp.
Mr. A. Down, Chief Accountant, Western Mining Corp.
Mr. J. Rusco, Headmaster, Kambalda Primary School
Mr. V. Middlemas, President, P & C, Kambalda West High School
Manager, Selcast Exploration Ltd.
Mr. A. Shepherd, Headmaster, Kambalda West Primary School

Eastern Goldfields/Esperance Regional Development Committee

Mr. D. West, Goldfields Regional Administrator
Mr. R.E. Darcy, Secretary, E.G.E.R.D.C.
Mr. R. Finlayson, Mayor, Town of Kalgoorlie
Mr. J. Cashman, Manager, North Kalgurli Mines, E.G.E.R.D.C.
Mr. W.B. Steel, Manager, Great Boulder Operations of W.M.C., E.G.E.R.D.C.